

### REMARKS/ARGUMENTS

Applicants wish to thank Examiner Stein for the helpful and courteous discussion he had with Applicants' U.S. representative on November 22, 2004. At that time, Applicants' U.S. representative argued that the process limitation claimed in Claim 1 produces a materially different product than that described in the reference. The following is intended to expand upon that discussion. Reconsideration of the outstanding rejections is requested in view of the following remarks.

The rejection of Claims 9, 13, and 17 under 35 U.S.C. § 102(b) over U.S. 4,297,143 (Klienschmit, '143) is respectfully traversed.

'143 describes pyrogenically produced silicon dioxide - mixed oxide that can be used as thermal insulation either as unpressed material in free bulk form or as a compacted mixture.

The presently claimed invention involves an article with a layer on a substrate where the layer is obtained by sintering an aqueous dispersion that has been applied to the substrate and where the dispersion contains a silicon/titanium mixed oxide powder prepared by flame hydrolysis and the titanium dioxide content of the powder ranges from 2 to 20 wt.%.

The Examiner's position is that the presently claimed invention is anticipated by '143 because "if the silicon dioxide mixed oxide in compacted form is used as thermal insulation, it necessarily must be in the form of [a] layer on a substrate". In addition, the Examiner regards the process limitations of Claim 1 as not dispositive on patentability because it has not been shown that the process limitations produce a materially different product.

Applicants disagree with the Examiner's position that the compacted mixed oxide described in '143 must be in the form of a layer on a substrate. Applicants note that the mixed oxide described in '143 is a free flowing powder and that the one reference that '143 cites (British Application No. 28052) describes an insulating sheet which consists of a

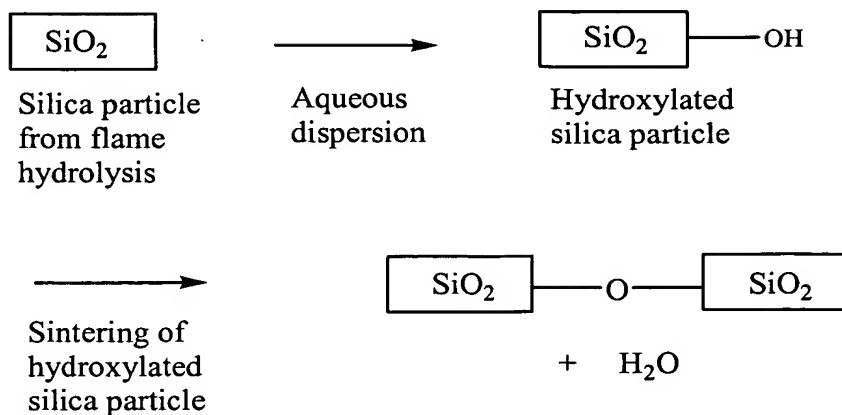
permeable jacket filled with the oxide powder. This is essentially a bag with the oxide powder in it and cannot be described as an oxide on a substrate. The other reference cited in '143 (British Application No. 43668) describes a thermal insulating material prepared by compressing a mixture of a silicon dioxide aerogel and a fiber material to form an insulating shaped article. This article is self-supporting and is not on a substrate. This data indicates that '143 did not contemplate a mixed oxide on a substrate.

In addition, Applicants note that the mixed oxide in '143 is a free flowing powder and it is unlikely that such a material would bind to a substrate without a binder such as an adhesive. Therefore, '143 can not describe a layer on a substrate, and accordingly, the presently claimed invention cannot be anticipated by '143.

Applicants also note that a materially different product from that described in '143 is produced by the process limitations as presently claimed in Claim 1. Applicants note that Claim 1 has been amended to more accurately reflect the chemistry that occurs by the sintering (heating) treatment of the aqueous dispersion that has been applied to the substrate.

The process claimed in Claim 1 involves dispersing, in an aqueous media, a silicon dioxide/titanium mixed oxide prepared by flame hydrolysis. Dispersing the mixed oxide chemically changes the mixed oxide powder by providing additional hydroxyl groups (hydroxylation) on the surface of the mixed oxide particles.

Following the aqueous dispersion (hydroxylation) of the silicon oxide, the dispersion is applied to a substrate followed by sintering of the silicon oxide layer on the substrate. This sintering process leads to elimination of water from the formed surface hydroxyl groups and the elimination of this water leads to the formation of Si-O-Si bonds between the particles and the substrate. These interparticle/substrate bonds form a strong layer on the substrate. This hydroxylation/de-hydroxylation process is illustrated below.



This process, which leads to interparticle bonding, is neither taught nor suggested by the cited reference. This process leads to a product that is materially different than the cited reference. Therefore, the presently claimed invention cannot be anticipated by '143.

Because the cited reference fails to disclose a substrate limitation and because the claimed process limitation leads to a materially different product, the presently claimed invention is not anticipated by '143. Therefore, Applicants respectfully request that the Examiner withdraw the rejection.

In addition, the claims are not obvious over '143. There is no teaching or suggestion found in '143 to lead to the presently claimed invention. '143 lacks a teaching or suggestion to form an article with a layer and a substrate and lacks a teaching of sintering an aqueous dispersion that has been applied to a substrate. There is no suggestion in '143 to modify the product in '143 to successfully arrive at the presently claimed invention. Finally, as

discussed above, '143 fails to teach all the claimed limitations of the presently claimed invention. Therefore, the presently claimed invention is not obvious over '143.

Applicants respectfully request that withdrawn Claims 18 and 19 be rejoined should Claim 9 be found allowable. Claims 18 and 19 are claims directed to making the product of Claim 9 and Claims 18 and 19 depend from Claim 9; therefore, Claims 18 and 19 should be rejoined if Claim 9 is allowable (M.P.E.P. §821.04).

Applicants respectfully request that withdrawn Claims 31 and 32 be rejoined since Claim 21 is allowed. Claims 31 and 32 are claims directed to making the product of Claim 21 and Claims 31 and 32 depend from Claim 21; therefore, Claims 31 and 32 should be rejoined (M.P.E.P. §821.04).

In light of the remark contained herein, Applicants respectfully submit that the present application is now in condition for allowance. Favorable reconsideration is respectfully requested.

Respectfully submitted,


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